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treated with a simple directness of statement that is much to be commended. Still further illumination is obtained by the outlines of easy demonstrations and experiments to accompany the context. The illustrations are clear and well selected throughout, and many of the best are original. The book will be found very useful in American as well as in English schools.—D. T. MACDOUGAL.

Cultivated plants of Asia Minor.²

IN A BOOK of 278 pages devoted to the natural resources of Asia Minor, Kannenberg has given something over one hundred pages to the cultivated plants of the region. The account is a contribution to agriculture and current history rather than to botany, but the student of cultivated plants will find it useful nevertheless, since it attempts to make an annotated inventory of all the leading plants cultivated or used for food, used in the industries, for ornament and the like, and also an account of forests and timbers. The botanical names of the various species are not given, and this detracts from the value of the book for specific reference, particularly in such confused groups as the rose and the cucurbits. Very full references are given to the literature of the various entries, and the reader will find much of interest in the discussions of local and geographical names for species and varieties. The book is essentially a compilation, the work of Hehn and others being laid under heavy tribute. There are many striking half tones. The book seems to be a distinctly good contribution to the popular knowledge of the immediately useful natural history of the region.—L. H. BAILEY.

The ferns of the earth.

Dr. H. Christ³ has published a general systematic account of ferns which is intended for popular rather than for technical use. This group has always been an attractive one for general presentation, ever since the *Synopsis Filicum* of Swartz in 1806. The last general presentation was the *Synopsis Filicum* of Hooker and Baker, edition of 1883.

The author restricts himself in various ways, so that the work may not be too bulky, and still may be a good general presentation of ferns. He confines himself to the homosporous Filicineæ, with their leptosporangiate and eusporangiate groups. Moreover, he does not include doubtful species, or even doubtful genera, attempting to present only those genera and species which are well established and representative. Of course his work is intended

² KANNENBERG, KARL.—Kleinasien's Naturschätze, seine wichtigsten tiere, Kulturpflanzen und Mineralschätze. Berlin: Gebrüder Borntraeger. 1897. *M.* 14.

³ CHRIST, H.—Die Farnkräuter der Erde. 8vo. pp. xi + 388. *figs.* 292. Jena: Gustav Fischer. 1897. *M.* 12.

merely for those interested in determining ferns, and it stops precisely at the point where interest for the specialist begins.

Another principle in the selection of species has been to include those which are remarkable in structure, phylogenetic character, or biological peculiarity. Those genera which, as he says, "are weakly expressed, showing only one or a few disappearing species," he omits in favor of those which are rich in species and uniform in character. He also omits peculiar island types, such as those of the Sandwich islands, Madagascar, etc.; nor does he include the rich fern flora of the Andes. His contention is that a comprehensive monograph, with a critical catalogue of all species, would be a work of several volumes, and would not serve the general purpose he has in view. With all these restrictions he presents 99 genera and 1154 species.

No analytic keys are provided, but simple descriptions of genera, sections, and species are depended upon to guide sufficiently. The author claims that a safe key is only possible for a limited flora and small genera, and that the more inclusive the key the more unsafe does it become. The descriptions are exceedingly simple, technical terminology being avoided so far as possible.

An excellent feature of the book is to be found in the numerous illustrations in the text accompanying the descriptions. These illustrations show at a glance the characters described by the text. It would be a useful thing if American students of ferns had a translation of this handy and simple volume.—J. M. C.

Text-book of lichenology.⁴

IT is so long since any work on lichens has been published by an American author that we take up Dr. Schneider's book with especial interest. In the preface we find this statement: "This work is primarily intended as a text-book for the use of students in colleges and universities, but will also be found useful to the specialist." Our secretly cherished hope that the study of lichens is to be popularized begins to fade away when we read that statement. As we glance over the technical treatment outlined for the subject, the hope entirely disappears. The book will be useful to those for whom it was written, but a feeling of regret will arise that it was not adapted for more general use. The plates, of which there are seventy-eight, add greatly to the value of the book, though it must be said that they are somewhat schematic. The subject-matter is divided into two parts. Part I treats of the history, general morphology and physiology of lichens; Part II of the classification and special morphology of lichens.

The first subject treated is the history of lichenology. This is stated to

⁴SCHNEIDER, ALBERT.—A text-book of general lichenology. Large 8vo., pp. 230, 76 plates. Binghamton, N. Y.: Willard N. Clute & Company. 1897.